

Field ration planning begins with the idea that in the backcountry, you should eat whenever you are hungry throughout the day. Snack foods that you can munch on while on the move or during breaks (lunch is often just a longer trail break), such as nuts, granola, hard candy and cheese, should be a part of your field rations. These foods provide a handy source of quick energy when you are hiking and are also a quick solution for cold or hunger in the middle of the night. Extra trail foods also make a good emergency food reserve. If you are planning rations for a group, you might have each individual be responsible for their own trail food to account for personal preferences and body needs; some people like and perform better with cheese and dried meat snacks, others with nuts and granola. Rather than planning rigid menus for each meal, include in a ration a wide variety of ingredients which provide good nutrition and allow for choice at each meal. If you experience a craving for a certain type of food, your body could be telling you it needs a particular nutrient (or it might just mean that you like pepperoni pizza). Basic foodstuffs combined with a little creativity are the ingredients for good backcountry eating.

For a weekend bivouac in the field, rations can be informal; just toss a few big cans of beef stew or chili into your rucksack (Nalley even makes them in camouflaged cans sold during hunting season). You should, however, include a good supply of food that yields a high amount of energy, like cheese or macaroni, which you can probably find in your refrigerator or pantry. For longer stays in the field, particularly with groups of four or more, rationing can require considerable planning. Like most outdoor skills, it may seem painstaking and time-consuming the first time, but after you have done it once and begin to understand your needs, the process will become quite easy.

There are six important criteria which, when combined with an understanding of good nutrition, can help you determine the right food to take to the field:

1. Your Mission. The major activities you anticipate during your mission should influence your choice of foods. If you will need to do a lot of mountaineering and cover a lot of miles, you want foods that can be prepared quickly. Energy content will be important, so pack snack foods to give yourself extra energy for long days. Don't count on running across edible wild vegetation, game or fish in your area of operations, but certainly supplement your rations if the opportunity arises and time and the mission allows.

2. Weight. Food is a major part of the weight of your rucksack. Your rations should weigh about 1-1/2 to 2-1/4 pounds per person per day in the summer and 2-1/4 to 2-1/2 pounds in the winter. Eight to ten days supply of food is about as much as you can carry comfortably along with

your weapon, ammo and other mission essential equipment. This assumes that much of the food will be dehydrated or dry staples like rice or pasta. If water will be in short supply and you need to carry canned food and extra water, the ration you can carry won't last as long. Freeze dried foods, in which only 2 to 3 percent of the moisture remains are lighter than dried foods, which often contain a full 25 percent of their original moisture. However, the freeze-drying process often removes some of the nutritional value of the food and freeze dried foods are much more expensive. Freeze drying does not alter the cell structure of food like other drying processes, so it retains its original shape and bulk. For example, you can pack more shriveled up dried apples in your rucksack than the equivalent amount of freeze-dried apples which stay their original size. To keep weight down, never carry food in glass bottles (which are also unsafe) and avoid canned foods or select those in aluminum cans like some meat spreads and Vienna sausage. To save weight and eliminate unnecessary bulk, discard original packaging (save the instructions) and place dried foods in zip-lock plastic bags. Freezer bags are stronger than sandwich bags and should be used with items like spaghetti which can puncture a weak bag. Carry spices and liquids in reusable plastic bottles. Bags and liquid containers can spring leaks, so pack liquid containers or several small bags of food in large freezer bags and also carry a few extra bags. Peanut butter, syrups and honey can be carried in backpacker's reusable squeeze tubes and many can now be found on the grocery store shelf in plastic packaging.

3. Spoilage. Because of the risk of spoilage, most meats and fresh foods should be excluded from summer rations. If you carry all dried goods, it's nice to throw in a couple of onions or potatoes, which will keep for three or four days (to reduce spoilage, use a brown paper bag and do not wash fresh vegetables before packing). Margarine or vegetable oil must replace butter on longer stays in the field in the summer. Fresh eggs can be broken into a plastic jar with a tight sealing lid and they will pour out one at a time. Fresh eggs broken into a backpacker's reusable squeeze tube will come out of the spout one at a time. They will keep up to four days if kept cool; carry the container in the center of your rucksack wrapped in clothing and immerse them in a stream when in camp. Plastic camping type egg carriers aren't sturdy enough for fresh eggs, but can be used for hard-boiled eggs; keep these cool also and use on the first few days in the field. Store-wrapped meat packages can be safely taken from your freezer, wrapped in some newspaper and packed in a brown paper bag for consumption on the first day of a mission, but freeze-dried meats, jerky or hard salami are the only practical form of carrying meat for more than one day in the field.

4. Availability and Expense. The best way to insure good, nutritious meals and keep your expenses down is to avoid freeze dried foods, which can be 3 to 6 times more expensive than buying ingredients for cooking from scratch. The more box dinners, commercially-mixed drinks and store-bought granola you use, the higher your food bill and the lower the nutritional value will be. If you are rationing for large groups, buy directly from granaries, dairies or wholesale stores. When including

freeze-dried foods in your rations, try to buy in bulk directly from an outlet rather than from retail distributors. Investing in a food dryer is a good way to cut down on the cost of dried vegetables and fruit (get one with both heat and circulating air). Most of the foodstuffs you should carry to the field are common staples which you can find in a large supermarket.

5. Variety. The more you know about your group's normal eating habits, the better you can plan their field rations. Include various types of food: trail foods, baking goods, spices for flavoring sauces and instant foods for rushed meals. Take along a few special ingredients and surprise your companions.

6. Preparations. When planning rations, consider the circumstances under which you will cook. What cooking tools will you be taking? Will you be using a stove or an open fire? If you will be cooking entirely on a butane or multifuel backpacking stove, most of your meals will most likely be cooked in one pot and baking will be very limited. If you only have a pocket stove and solid fuel tablets, your rations will have to be limited to reheating already cooked food in cans or pouches (like MRE's or vacuum sealed cooking bags) or freeze-dried foods. In cold weather, avoid foods that need to cook a long time or require a lot of pot handling or intricate use of knives or fingers, since you will probably be wearing heavy gloves or mittens.

The following sample represents a summer ration plan for ten days for two people at 2 pounds per person per day, and can be used as a guide when planning your field rations:

Tea, 10 bags; or coffee, 1/2 lb.
Margarine, 3 lbs.
Powdered milk, 2 lbs.
Cocoa, 2 lbs.
Raisins, 1 lb.
Dried figs, 1 lb.
Dried coconut, 1/2 lb.
Dried peaches, 1/2 lb.
Shelled peanuts, 1 lb.
Toasted soybeans, 1/2 lb.
Roasted almonds, 1 lb.
Sesame seeds, 1/4 lb.
Sunflower seeds, 1 lb.
Cheddar cheese, 3 lbs.
Monterey jack cheese, 3 lbs.
Gingerbread mix, 1/2 lb.
Grapenuts, 2 lbs.
Oatmeal, 1/2 lb.
Wheat cereal, 1/2 lb.
Granola, 1 lb.
Instant hash browns, 2 lbs.

Instant fruit drink, 1 lb.
Brown sugar, 1 lb.
Macaroni, 1 lb.
Spaghetti, 1 lb.
White rice, 1 lb.
Brown rice, 1/2 lb.
Instant potatoes, 1/2 lb.
Pinto beans, 1 lb.
Barley, 1/2 lb.
Tortillas, 1 lb.
Flour, 2-1/2 lbs.
Cornmeal, 1/2 lb.
Soup mixes, 3/4 lb.
Dried vegetables, 1/2 lb.
Popcorn, 1/4 lb.
Baking powder, 1/4 lb.
Yeast, 1/4 lb.
Seasonings: Tabasco, salt, pepper, cayenne, oregano, garlic salt, dry mustard, nutmeg, cinnamon, onion salt, curry powder, chili powder, flavoring extracts.

Total weight: 40-3/4 lbs. or 20-3/8 lbs. per person

Buying, Packing & Preparing Foods. Generally the foodstuffs you carry in your rucksack should be packed in plastic bags or bottles. A vacuum sealing device can greatly reduce the bulk of some foods and help preserve them.

Meats: On a long mission, meat, due to its cost and weight, will usually be a luxury used only for flavoring. For a short stay in the field, there are a variety of suitable meat products, including compressed meat bars, freeze dried meats (ground beef is useful with Hamburger Helper type pasta main-course dishes) and dry sausages that do not require refrigeration. Homemade meat jerky is inexpensive and simple to make. Small cans of Vienna sausage, tuna, sardines, cooked boned meats (chicken, turkey, ham, etc.), corned beef or various meat spreads are also good on short missions. Canned meats with a high fat content like corned beef or tuna packed in vegetable oil will lessen the amount of margarine required when added to rice or pasta dishes. Even on a longer mission a small amount of canned meats should be packed. They can be eaten cold when circumstances don't permit cooking.

Soybean Products: The protein in soybeans is fairly similar to that found in meat. In addition to roasted soybeans, which make good trail food and provide interesting texture for many cooked meals, you can buy soy flour (useful for its nutty flavor) for baking or thickening stews or making gravy (most gravy mixes are little more than meat flavoring, salt and flour). Soy-derivative products such as "ham" and "bacon" bits can add flavor to omelets and rice and bean dishes.

Dried Eggs: Powdered eggs are available as whole eggs, or white and yolks separately. Quality varies considerably from brand to brand, so it is wise to experiment at home before relying on them in the field.

Nuts and Seeds: Shelled nuts are more convenient for backcountry cooking. Nuts make good trail food and add taste and texture to baked goods. To save money, buy unroasted nuts and roast them yourself.

Legumes: Dried legumes (split peas, lentils, beans, etc.) when combined with brown rice or other grains make a complete protein, and can add variety to a meal. They generally take a long time to cook unless you use a pressure cooker or you prepare quick-cooking beans (by pre-cooking and then drying them for field use). Quick cooking beans are available in at some backpacking stores, but are much more expensive than dried beans. Bean and pea flours make good soup bases or thickeners if you can find them (or grind your own); most are now sold as soup mixes.

Dry Milk: Several types of powdered milk are available: instant whole milk, instant nonfat milk, regular whole milk and buttermilk. Whole milk has more calories and vitamins than nonfat milk and is a better additive for baked goods. Instant powders dissolve more easily in cold water. A wide variety of breakfast drinks with milk bases are also easy to find in most grocery stores.

Cocoa: It's easier to use the instant type cocoa, which has already been combined with powdered milk. In the field all you have to do is add hot (not boiling) water.

Cheese: Sharp cheddar seems to be the cheese with the most versatile flavor for backcountry cooking. It also keeps better than many other cheeses. Hard cheeses like Parmesan and Romano are also good in the field, as are processed cheese snacks (leave the type with a heavy can full of air at home).

Margarine: Butter spoils rapidly in summer in the field, so margarine should be carried. Use a plastic squeeze bottle or remove the wrappers from sticks and carry them in a wide mouth screw-top plastic jar (the lids on tubs of soft spread margarine aren't secure enough).

Dried Fruit: Dried fruit (such as apples, prunes, raisins, apricots and peaches) can be found in any supermarket or you can dry them yourself. They make good trail food eaten as they are or added to breads. They can be stewed and eaten in cereals or for dessert at suppertime (you can cook some extra to be eaten cold the next morning). Dried fruit retains about 25 percent of its moisture and is thus heavier to carry than the considerably more expensive freeze-dried fruit, which has less than 3

percent moisture content. Sulfur-dried fruit, which must be soaked before using, contain more vitamins and minerals than other dried fruit. When properly packaged and stored below 60 degrees, most home dried fruit will maintain good quality for at least one year. Fruit packed in vacuum sealed bags lasts three to four times longer and for every 18 degrees drop in temperature, shelf life also increases three to four times.

Dried Vegetables: Vegetables add color, vitamins and minerals to any meal. You can purchase freeze-dried or dry your own. Home dried vegetables don't keep as well as dried fruit because they are low in acid and sugar. If possible, they should be refrigerated or frozen. Ideally dried vegetables should be used in less than six months when stored at 60 degrees (some vegetables like squash and cucumber should be used within two weeks). Dried green peas, onions and flaked cabbage are good for stews or soups. Carrots, green beans, beets and corn are also good, but take somewhat longer to cook. Flaked green peppers and onions make good seasonings and can be added to almost anything. Tomato flakes mix with water to make paste, sauce or juice, and are one of the best flavorings for outdoor cooking.

Potatoes: Potatoes come in flake or powdered form and can be used as a separate dish, an additive or a thickener. Though potato flakes lose much of their vitamin C when processed, they are a versatile food for field cooking. Along with plain potatoes you might also carry a variety of packaged flavored types with sauce mixes. Throw away the original packaging and re-pack (along with the right proportion of dry milk if the recipe requires milk) in plastic bags or bottles labeled with cooking instructions.

Self-Rising Baking Dishes: For simplicity and weight, it's important to buy mixes which do not require the addition of eggs and shortening. Biscuit mixes can also be used to make cakes and pancakes. A few special mixes, such as gingerbread, cake mixes or special flours make a good change of pace for a long stay in the field.

Wheat Germ: Wheat germ is used primarily as a nutritional supplement for cooking. Roasted wheat germ will keep for up to a month without refrigeration.

Cereals: Oat and wheat cereals are nutritionally superior to rice and barley cereals. Bulgur wheat (also called "ala"), a whole grain product that cooks rapidly enough for field use, can be found in the hot cereal section of some supermarkets or in health food stores (which sometimes also stock other quick-cooking grains). It is wheat which has been pre-cooked, dried and cracked; cook and use it like rice. While uncooked cereals are the most versatile and can be used for hot cereal, granola and baking, the instant cereals are much easier to cook, usually taking less than a third of the time. While it is usually the best practice to

carry foodstuffs consolidated in zip-lock bags and measure out portions, you might want to carry several different flavors of instant hot breakfast cereals in single serving packs for convenience and to add variety.

--